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Critical current of He3-A in narrow channels

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Abstract

The critical current Jc of superfluid He3-A in 0.8-μm-diam channels has been measured by the observation of the pressure difference along the channels versus the mass current. During warming Jc was found to decrease by about 30% at TBA(cyl) and by another 30% at TBA; TBA(cyl) is the reduced B→A transition temperature in the narrow flow channels, with TBA(cyl)TBA=0.92 at 27.4 bars. Above TBA a second dissipative mechanism was observed at lower currents. These features are believed to be associated with the ends of the channels. © 1982 The American Physical Society.

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